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Consistency of Model Year Injury Claim Frequency Results For Selected 1981-1983 Models

Highway Loss Data Institute
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Highway Loss Data Institute Insurance Special Report

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HLDI A-26

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SUMMARY

The Highway Loss Data Institute (HLDI) publishes annual reports of injury loss results that aggregate up to three model years of injury loss data for vehicle series with essentially unchanged designs. Aggregation of the loss data is necessary to obtain a sufficient amount of data to produce reliable results for each vehicle series.

This study compared the all-claims injury results data of 118 different vehicle series for at least two of the model years 1981-83. Of the 230 paired comparisons of individual model year data, 223 had claim frequency results that did not differ significantly. The seven paired comparisons that did indicate differences between model year results are within the number expected by chance alone. Thus, this study demonstrates that the injury results for individual model year vehicles are generally consistent across model years when the basic vehicle designs are unchanged.

INTRODUCTION

The Highway Loss Data Institute (HLDI) is a nonprofit, public service organization that gathers, processes, and publishes insurance data concerning the human and economic losses associated with motor vehicles — especially the ways such losses vary among different kinds of vehicles. As part of its reporting activities, HLDI annually publishes a report summarizing injury losses for recent model year vehicles (e.g., see HLDI Report I84-1: Insurance Losses, Personal Injury Protection Coverages — Passenger Cars, Vans, Pickups, and Utility Vehicles, 1982-1984 Models). These reports are usually based on the injury loss experience aggregated for three model years of individual vehicle series. Aggregated results are used to increase the amount of exposure* and hence the reliability of the claim frequency results. Each vehicle series is reviewed to verify basic design similarity for the model years included in the study. This report presents a formal statistical analysis comparing the individual model year results for vehicles whose combined results have been included in previous HLDI reports.

The report is based on personal injury protection data supplied by 13 insurers: Aetna, Allstate, Fireman's Fund, GEICO, Kemper, Liberty Mutual, Nationwide, Prudential, Safeco, Sentry, State Farm, Travelers, and USAA.

*See Appendix B, Definitions.

METHOD OF DATA ANALYSIS

This report compares the individual model year injury results that were used to produce the aggregated results for 1981-83 models in HLDI report I83-1 and 1982-84 models in HLDI report I84-1. The most recent model year claim frequency results (model year 1983 in the I83-1 report and model year 1984 in the I84-1 report) were not used. These results were excluded because they were generally based on the least amount of exposure among the three model years used for each report and thus were the least reliable. In addition, only 1981 and 1982 model year vehicles (from the I83-1 report) and 1982 and 1983 models (from the I84-1 report) with at least 5,000 insured vehicle years of exposure for each model year were used in this analysis. Eighty-five vehicles included in the I83-1 report and 89 vehicles included in the I84-1 report satisfied these exposure criteria. Fifty-six of these vehicle series were covered by both reports so that 118 different vehicle series had sufficient exposure in two model years to be included in this analysis.

The results for individual vehicle series in different model years are, of course, based on different amounts of exposure. Confidence in the results increases with the amount of exposure. To account for these differences in exposure in comparing model year results (e.g., model year 1981 vs. 1982) for a vehicle series, confidence intervals were constructed for each model year result. A confidence interval provides a range of values that contains the actual model year claim frequency at a specified confidence or probability level (e.g., 95 percent confidence). These intervals are wider for estimates that are more variable and narrower for less variable estimates. The confidence intervals can then be used to determine whether two model year claim frequencies are statistically equivalent because differences in variability have been incorporated into the intervals.

Model year claim frequency results for individual vehicle series and for all passenger cars combined were standardized by operator age group. Relative claim frequency results for individual vehicle series were calculated by dividing each vehicle's standardized model year result by the standardized model year result for all passenger cars. Standardization and the conversion of results to a relative basis are discussed in detail in the annual injury reports (see, e.g., HLDI I84-1, pages 19-21). Ninety-five percent confidence intervals were constructed for each vehicle's model year relative claim frequency (see Appendix A). The confidence intervals were used as the basis for paired comparisons of model year claim frequencies for each vehicle series. Overlapping intervals indicate that the individual model year results are similar. Conversely, confidence intervals that do not overlap indicate a greater than expected difference between two model year claim frequencies.

RESULTS AND DISCUSSION

The individual model year relative claim frequencies for the vehicle series meeting the exposure requirements are given in Table 1. For each vehicle series for which relative claim frequency results were available, the following comparisons were made: using I83-1 data, results for model year 1981 passenger cars were compared to those for model year 1982 (identified as Model Year 1982a in Table 1); using I84-1 data, model year results for 1982 (Model Year 1982b in Table 1) and 1983 were compared; finally, the 1981 model year results were compared to the results for model year 1983. A total of 230 model-year pairs were evaluated using the confidence interval methodology. The number of comparisons for each paired set of model years is given in the following tabulation:

Model Year	Numbers of Model Year Comparisons
1981 vs. 1982a	85
1982b vs. 1983	89
1981 vs. 1983	56
Total	**230**

Two hundred twenty-three of the 230 individual paired comparisons were not statistically different (i.e., the paired confidence intervals overlapped). The seven paired comparisons that did indicate differences between specific pairs of model year results are within the number expected merely by statistical chance. Thus, the individual model year injury claim frequency results are consistent from year to year for vehicles with essentially unchanged designs.

Table 1
Relative Injury Claim Frequency by Model Year for 1981-1983 Passenger Cars*

MAKE	SERIES	MODEL YEAR** 1981	1982a	1982b	1983
	SMALL CARS				
TWO-DOOR MODELS					
CHEVROLET	CHEVETTE	135	154	150	165
DODGE	CHARGER/OMNI	128	134	130	129
DODGE	COLT	144	170	152	136
FORD	ESCORT	116	125	128	134
HONDA	ACCORD	-	-	105	103
HONDA	CIVIC CVCC	120	118	-	-
MAZDA	GLC	118	90	95	127
MERCURY	LYNX	117	131	140	131
NISSAN	SENTRA	-	-	121	138
NISSAN	200SX	136	122	-	-
PLYMOUTH	CHAMP/COLT	134	152	-	-
PLYMOUTH	HORIZON	122	133	130	123
PONTIAC	1000	158	155	-	-
SUBARU	HARDTOP	153	127	-	-
SUBARU	HATCHBACK	120	126	-	-
TOYOTA	CELICA	-	-	120	122
TOYOTA	COROLLA	141	133	-	-
TOYOTA	STARLET	130	148	-	-
VOLKSWAGEN	RABBIT	96	107	-	-
FOUR-DOOR MODELS					
CHEVROLET	CHEVETTE	123	137	140	150
DODGE	OMNI	111	109	114	115
FORD	ESCORT	-	-	115	129
HONDA	ACCORD	-	-	83	95
HONDA	CIVIC	113	113	-	-
MAZDA	GLC	111	123	116	149
MERCURY	LYNX	-	-	116	131
NISSAN	SENTRA	-	-	129	150
NISSAN	STANZA	-	-	111	106
PLYMOUTH	HORIZON	109	111	112	122
PONTIAC	1000	126	135	-	-
SUBARU	DL/GL SEDAN	124	123	119	136
TOYOTA	COROLLA	129	139	-	-
VOLKSWAGEN	JETTA	79	95	-	-
VOLKSWAGEN	RABBIT	93	84	-	-

(See notes on Page 6)

Table 1 (Cont'd)
Relative Injury Claim Frequency by Model Year for 1981-1983 Passenger Cars*

MAKE	SERIES	MODEL YEAR** 1981	1982a	1982b	1983
SMALL CARS (CONT'D)					
STATION WAGONS/PASSENGER VANS					
FORD	ESCORT	92	92	92	97
HONDA	CIVIC	100	97	-	-
MERCURY	LYNX	86	80	-	-
NISSAN	SENTRA	-	-	110	111
SUBARU	DL/GL 4WD	92	109	104	88
SUBARU	DL/GL	97	96	97	105
TOYOTA	COROLLA	109	97	-	-
SPORTS & SPECIALTY					
CHEVROLET	CORVETTE	89	103	-	-
FORD	EXP	-	-	121	140
MAZDA	RX-7	101	101	101	106
NISSAN	280ZX	104	113	-	-
MIDSIZE CARS					
TWO-DOOR MODELS					
BUICK	REGAL	90	83	88	90
BUICK	SKYHAWK	-	-	126	117
BUICK	SKYLARK	94	98	99	90
CHEVROLET	CAVALIER	-	-	120	135
CHEVROLET	CITATION	104	111	-	-
CHEVROLET	MONTE CARLO	100	102	101	96
CHRYSLER	LE BARON	-	-	102	100
DODGE	ARIES	105	97	103	119
FORD	FUTURA	109	92	-	-
MERCURY	CAPRI	124	109	-	-
OLDSMOBILE	CIERA	-	-	91	94
OLDSMOBILE	CUTLASS	90	87	90	85
OLDSMOBILE	OMEGA	94	90	-	-
PLYMOUTH	RELIANT	111	121	123	114
PONTIAC	GRAND PRIX	90	90	97	89
PONTIAC	2000	-	-	114	117
FOUR-DOOR MODELS					
BUICK	CENTURY	-	-	88	92
BUICK	REGAL	78	82	81	77
BUICK	SKYHAWK	-	-	116	122

(See notes on Page 6)

Table 1 (Cont'd)
Relative Injury Claim Frequency by Model Year for 1981-1983 Passenger Cars*

MAKE	SERIES	MODEL YEAR** 1981	1982a	1982b	1983
MIDSIZE CARS (CONT'D)					
FOUR-DOOR MODELS (CONT'D)					
BUICK	SKYLARK	87	85	92	92
CADILLAC	CIMARRON	-	-	96	90
CHEVROLET	CAVALIER	-	-	111	109
CHEVROLET	CELEBRITY	-	-	99	89
CHEVROLET	CITATION	99	91	94	93
CHEVROLET	MALIBU	90	96	-	-
CHRYSLER	LE BARON	-	-	89	88
DODGE	ARIES	106	101	112	110
FORD	FUTURA	108	103	-	-
NISSAN	810/MAXIMA	108	123	117	123
OLDSMOBILE	CIERA	-	-	91	87
OLDSMOBILE	CUTLASS	77	74	75	73
OLDSMOBILE	OMEGA	91	88	98	99
PONTIAC	2000	-	-	106	103
PONTIAC	6000	-	-	104	77
PONTIAC	BONNEVILLE	79	80	82	80
PONTIAC	PHOENIX	93	106	-	-
PLYMOUTH	RELIANT	99	113	111	119
TOYOTA	CRESSIDA	92	87	92	87
VOLVO	240	86	98	92	92
STATION WAGONS/PASSENGER VANS					
AMERICAN	EAGLE 30	-	-	70	62
CHEVROLET	CAVALIER	-	-	93	96
CHEVROLET	MALIBU	78	72	-	-
DODGE	ARIES	89	89	93	92
PLYMOUTH	RELIANT	89	96	103	83
VOLVO	240	78	61	53	63
SPORTS & SPECIALTY					
BMW	320i	90	92	-	-
CHEVROLET	CAMARO	-	-	110	115
FORD	MUSTANG	116	129	128	124
NISSAN	280ZX 2+2	105	105	-	-
PONTIAC	FIREBIRD	-	-	106	102
TOYOTA	CELICA SUPRA	-	-	97	100

(See notes on Page 6)

Table 1 (Cont'd)
Relative Injury Claim Frequency by Model Year for 1981-1983 Passenger Cars*

MAKE	SERIES	MODEL YEAR** 1981	1982a	1982b	1983
LARGE CARS					
TWO-DOOR MODELS					
BUICK	LE SABRE	85	74	69	70
OLDSMOBILE	DELTA 88	69	71	70	71
FOUR-DOOR MODELS					
BUICK	ELECTRA	67	73	73	64
BUICK	LE SABRE	65	60	63	62
CHEVROLET	CAPRICE	83	63	72	66
CHEVROLET	IMPALA	73	79	79	77
CHRYSLER	NEW YORKER 5TH AVE	—	—	72	67
FORD	CROWN VICTORIA	73	69	75	65
MERCURY	GRAND MARQUIS	80	56	67	66
OLDSMOBILE	DELTA 88	59	58	58	57
OLDSMOBILE	NINETY-EIGHT	57	64	63	63
STATION WAGONS/PASSENGER VANS					
CHEVROLET	CAPRICE	65	73	77	64
OLDSMOBILE	CUSTOM CRUISER	—	—	53	57
SPORTS & SPECIALTY					
BUICK	RIVIERA	78	63	70	80
CADILLAC	BROUGHAM 4D	77	83	82	61
CADILLAC	DE VILLE 2D	87	79	78	85
CADILLAC	DE VILLE 4D	66	68	65	69
CADILLAC	ELDORADO	88	66	68	76
CADILLAC	SEVILLE	—	—	63	83
LINCOLN	TOWN CAR	68	81	73	70
MERCEDES	300D	—	—	63	66
OLDSMOBILE	TORONADO	69	62	67	61

* Results Standardized to the Distribution:

Youthful Operator - 10%
No-Youthful Operator - 90%

** 1981 and 1982a results were based on data used in HLDI Report I83-1;
1982b and 1983 results were based on data used in HLDI Report I84-1.

A dash (–) indicates insufficient exposure for model year or substantial change in design occurred precluding comparison of results.

APPENDIX A

Confidence Intervals for Relative Strandardized Claim Frequency

This appendix summarizes the approach used to construct confidence intervals for individual model year relative claim frequencies for those vehicles satisfying the exposure requirements of this study. Confidence intervals were initially constructed for the standardized claim frequency and were subsequently converted to correspond to the vehicle's model year relative claim frequency.

The standardized claim frequency (CF) per 1,000 insured vehicle years is given by the equation:

$$CF = 1{,}000\ [(.1)\ N_1/E_1 + (.9)\ N_2/E_2],$$

where N_1 = Total number of claims for the youthful operator age group;

N_2 = Total number of claims for the no-youthful operator age group;

E_1 = Exposure in insured vehicle years for the youthful operator age group; and

E_2 = Exposure in insured vehicle years for the no-youthful operator age group.

For each operator age group, the distribution of the number of claims, N_i, can be satisfactorily approximated by a Poisson distribution with mean and variance (L_iE_i), where

L_i = claim frequency (per insured vehicle year) for the operator age group,

$= N_i/E_i$.

The variance of CF is then

$$VAR(CF) = (1{,}000)^2\ [(.1)^2\ N_1/E_1^2 + (.9)^2\ N_2/E_2^2].$$

For the exposure requirements used in this report, the distribution of the standardized claim frequency can be satisfactorily approximated by a normal distribution with mean CF and variance VAR(CF). A two-sided 95 percent confidence interval for the standardized claim frequency is then given by the expression

$$CF \pm 1.96\sqrt{VAR(CF)}.$$

For a specific model year, a vehicle's standardized claim frequency (CF) is converted to a relative claim frequency (RCF) by dividing the standardized result by the model year's standardized claim frequency for all passenger cars. Thus, *each* vehicle's standardized model year claim frequency result is divided by a constant value (K), which is the particular model year's all-passenger-car result. That is, RCF = CF/K and VAR(RCF) = VAR(CF)/K^2, where the all-passenger-car results were 17.1 for model year 1981; 18.2 and 17.5 for the two sets of model year 1982 results; and 18.9 for the model year 1983 results. Therefore, a vehicle's model year standardized claim frequency and its associated confidence interval endpoints are converted to relative values by dividing by the appropriate all-passenger-car model year result.

Example:

For personal injury protection (PIP) coverage, the results for the 1981 Dodge Colt two-door models were as follows:

Operator Age Group	Exposure in Insured Vehicle Years	Number of Claims
Youthful	3,636	142
No-Youthful	16,360	378

Thus, the standardized claim frequency is

$$CF = 1{,}000\ [(.1)\ 142/3{,}636 + (.9)\ 378/16{,}360]$$
$$= 24.7 \text{ claims per } 1{,}000 \text{ insured vehicle years of exposure,}$$

and its variance is

$$VAR(CF) = (1{,}000)^2\ [(.1)^2\ 142/3{,}636^2 + (.9)^2\ 378/16{,}360^2]$$
$$= 1.3.$$

Thus, the 95 percent confidence interval for the standardized claim frequency is

$$CF \pm 1.96\sqrt{VAR(CF)} = (22.5,\ 26.9).$$

The all-passenger-car result for model year 1981 was 17.1; therefore, the relative claim frequency is $(24.7/17.1) \cdot 100 = 144$. The endpoints of the confidence interval for the standardized claim frequency are converted to relative values by also dividing each of the values by the all-passenger-car result:

$(22.5/17.1) \cdot 100 = 132$ and $(26.9/17.1) \cdot 100 = 157$.

APPENDIX B
Definitions

Claim Frequency - The number of claims for a group of vehicles, divided by the exposure for that group; expressed as claims per one thousand insured vehicle years.

Exposure - The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

First-Party Coverage - An insurance coverage under which the policyholder collects compensation for his losses from his own insurer regardless of fault.

No-Fault Auto Insurance - An auto insurance plan in which each driver/owner accepts financial responsibility for some or all losses sustained by himself, pedestrians hit by him, and occupants of his own vehicle in return for which he enjoys some immunity from liability for losses to third party persons.

Operator Age Group - The factor that distinguishes those vehicles with a youthful rated driver from those vehicles without a youthful rated driver (see Youthful Operator).

Personal Injury Protection (PIP) Coverage - First party no fault coverage in which an insurer pays, within the specified limits, the medical, hospital, and other expenses of the insured, others in his vehicle, and pedestrians struck by him.

Rated Driver - The driver who, for insurance purposes, is considered to represent the greatest loss potential for the insured vehicle.

Passenger Car Classifications - There are four major body style groupings of passenger cars—regular two door models, regular four door models, station wagons and passenger vans, and sports and specialty models. Sports and specialty models include all two seater cars, all convertibles, all midsize and large cars with two or fewer designated rear seating positions, and all luxury cars. Each body style group is further divided into classes based on wheelbase size (rounded to the nearest inch) defined as follows:

Small - Cars with wheelbases less than or equal to 99 inches.

Midsize - Cars with wheelbases greater than 99 inches less than or equal to 109 inches.

Large - Vehicles with wheelbases greater than 109 inches.

Vehicle Series - A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Youthful Operator - For the purposes of this report, all males (married or single) under 25 years of age and all unmarried females under 25 years of age.

HLDI Publications

Research reports published by the Highway Loss Data Institute are:

R72-1 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1972 Models,* June 1973.

R73-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1973 Models Compared with 1972 Models,* September 1973.

R73-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models,* March 1974.

R73-3 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models During Their First Two Years,* December 1974.

R73-4 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models During Their First Three Years,* December 1975.

R74-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1974 Models,* May 1974.

R74-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1974 Models During Their First Year,* December 1974.

R74-3 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1974 Models During Their First Two Years,* December 1975.

R75-1 *Automobile Insurance Losses, Collision Coverages, Initial Results for 1975 Models,* July 1975.

R75-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1975 Models During Their First Year,* December 1975.

R76-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1976 Models,* June 1976.

R76-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1976 Models During Their First Year, 1975 Models During Their First Two Years, 1974 Models During Their First Three Years,* December 1976.

R77-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1977 Models,* June 1977.

R77-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1977 Models During Their First Year, 1976 Models During Their First Two Years, 1975 Models During Their First Three Years,* December 1977.

R78-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1978 Models,* June 1978.

R78-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1978 Models During Their First Year, 1977 Models During Their First Two Years, 1976 Models During Their First Three Years,* January 1979.

R79-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1979 Models,* June 1979.

R79-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1979 Models During Their First Year, 1978 Models During Their First Two Years, 1977 Models During Their First Three Years,* December 1979.

R80-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1980 Models,* June 1980.

R80-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1980 Models During Their First Year, 1979 Models During Their First Two Years, 1978 Models During Their First Three Years,* December 1980.

R81-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1981 Models,* July 1981.

R81-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years,* December 1981.

R82-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1982 Models,* July 1982.

R82-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1982 Models During Their First Year, 1981 Models During Their First Two Years; 1980 Models During Their First Three Years,* December 1982.

R83-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1983 Models,* June 1983.

R83-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1983 Models During Their First Year, 1982 Models During Their First Two Years, 1981 Models During Their First Three Years,* January 1984.

R84-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1984 Models,* June 1984.

R84-2 *Insurance Losses, Collision Coverages; Passenger Vehicles, Vans, Pickups, and Utility Vehicles; 1984 Models During Their First Year, 1983 Models During Their First Two Years, 1982 Models During Their First Three Years,* January 1985.

R85-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1985 Models,* July 1985.

R85-2 *Insurance Losses, Collision Coverages, 1983-85 Passenger Vehicles, Vans, Pickups, and Utility Vehicles,* January 1985.

V78-1 *Automobile Insurance Losses, Non-Commercial Collision Coverages; Variations by Make and Series, Vans, Pickups and Utility Vehicles; 1978 Models During Their First Year, 1977 Models During Their First Two Years,* February 1979.

V79-1 *Automobile Insurance Losses, Non-Commercial Collisions Coverages; Variations by Make and Series, Vans, Pickups and Utility Vehicles; 1979 Models During Their First Year, 1978 Models During Their First Two Years,* April 1980.

V79-2 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim for 1977, 1978, and 1979 Vans, Pickup Trucks, and Utility Vehicles,* October 1980.

V79-3 *Insurance Theft Losses; Vans, Pickups, and Utility Vehicles, 1979 Models,* May 1981.

V80-1 *Automobile Insurance Losses, Non-Commercial Collision Coverages; Variations by Make and Series, Vans, Pickups, and Utility Vehicles; 1980 Models During Their First Year, 1979 Models During Their First Two Years, 1978 Models During Their First Three Years,* December 1980.

V80-2 *Automobile Insurance Losses, Personal Injury Protection Coverages; Injury Claim Frequency Results by Size of Claim; Vans, Pickup Trucks, and Utility Vehicles, 1977-1980 Models,* September 1981.

I75-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974 and 1975 Models,* June 1976.

I75-2 *Automobile Insurance Losses, Percentage of Collision Claims with Associated Injury Claims for 1974 and 1975 Models,* March 1977.

I76-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974, 1975, and 1976 Models,* November 1977.

I76-2 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974, 1975, and 1976 Models,* September 1978.

I77-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1977 Models,* September 1978.

I78-1 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results for 1977 and 1978 Models,* September 1979.

I79-1 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim for 1977, 1978, and 1979 Models,* October 1980.

I80-1 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim; 1978-1980 Models,* September 1981.

I81-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1979-1981 Models,* September 1982.

I82-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1980-1982 Models,* September 1983.

I83-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981-1983 Models,* September 1984.

I84-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1982-1984 Models,* August 1985.

A-1 *Automobile Insurance Losses, Collision Coverages; A Comparison of Results for 1972 and 1973 Models,* May 1974.

A-2 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Density, 1972 and 1973 Models,* September 1974.

A-3 *Automobile Insurance Losses, Collision Coverages; A Comparison of Results for 1973, 1974 and 1975 Models,* July 1975.

A-4 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Density, 1974 and 1975 Models,* December 1975.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models,* December 1975.

A-6 *Automobile Insurance Losses, Collision Coverages; An Investigation of Relationships Between Losses and Engine Specifications, Using 1973 Models,* June 1976.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models,* June 1976.

A-8 *Automobile Insurance Losses, Injury Coverages; A Preliminary Comparison of Results for Volkswagen Rabbits with Passive and Active Seat Belts, 1975 and 1976 Models,* June 1977.

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